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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,169	02/14/2001	Shoji Hara	010164	2107

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EXAMINER	
TALBOT, BRIAN K	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 08/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/782,169	HARA ET AL.	
	Examiner	Art Unit	
	Brian K. Talbot	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The amendment filed 6/7/06 has been considered and entered. Claims 14-16 have been canceled. Claims 19 and 20 have been added. Claims 1-13 and 17-20 remain in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. In light of the amendment filed 6/7/06, the 35 USC 102 rejection over JP 62-60640 has been withdrawn.

Claim Rejections - 35 USC § 103

4. Claims 1-9,13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (5,156,710) or Shiotani et al. (5,741,598) in combination with JP 54-066966.

Chen et al. (5,156,710) or Shiotani et al. (5,741,598) teach applying a metal layer to a polyimide layer and heating to form a conductor layer atop the polyimide layer. The polyimide layer is formed by imidizing a polyamic acid. The metal layer can be applied by a variety of ways but laminating a metal foil is most preferred.

Shiotani et al. (5,741,598) further teaches that it is conventional in the art to form the metal layer atop the polyimide film by plating (col. 1, lines 27-30) The laminate is formed by applying the metal layer to the imide layer and heating by pressure.

Chen et al. (5,156,710) or Shiotani et al. (5,741,598) fail to teach heating the said laminate.

JP 54-066966 teaches manufacturing a composite sheet. A metal foil and a heat-resistant polymer are combined to form a laminate and then the laminate is aged at a temperature and atmosphere that does not result in reduced adhesion strength (abstract).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Chen et al. (5,156,710) or Shiotani et al. (5,741,598) process by performing a subsequent ageing step as evidenced by JP 54-066966 with the expectation of achieving a superior bond between the polyimide and the metal layers.

Claims 1,3-11,13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-60640 or JP 11-240,106 in combination with JP 54-066966.

JP 62-60640 teaches sputtering or vapor depositing a metal atop a thermoplastic polyimide sheet and heating to form the laminated film. JP 62-60640 forms the laminates in a continuously mode of extrusion forming. Not laminated with metal, the resin may be plated with metal through chemical plating, electroplating, sputtering or vapor deposition to produce the laminates of the invention (pg. 7 of translation filed 1/09/04)

JP 11-240,106 teaches applying a metal or metal oxide layer on a polyimide layer by vapor deposition or sputtering (abstract).

JP 62-60640 or JP 11-240,106 fail to teach heating the said laminate.

JP 54-066966 teaches manufacturing a composite sheet. A metal foil and a heat-resistant polymer are combined to form a laminate and then the laminate is aged at a temperature and atmosphere that does not result in reduced adhesion strength (abstract).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified JP 62-60640 or JP 11-240,106 process by performing a subsequent ageing step as evidenced by JP 54-066966 with the expectation of achieving a superior bond between the polyimide and the metal layers.

With respect to claims 19 and 20 that recite a peel strength, it is the Examiner's position that the claimed peel strength would be achieved by the combination of prior art as the processes and materials are similar.

With respect to claims 8 and 9, the claims recite a using pressure with the heating step. While the Examiner acknowledges the fact that the prior art fails to teach pressure in the subsequent heating step, the prior art does teach utilizing pressure in forming the laminate that improves adhesion between the polyimide and the metal layer. Hence it is the Examiner's position that one skilled in the art would have had a reasonable expectation of achieving similar success, i.e. improved adhesion, with the aid of pressure in the subsequent heating step as evidenced by the heating/pressure step in forming the laminate.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-60640, Chen et al. (5,156,710), Shiotani et al. (5,741,598) or JP 11-240,106 in combination with JP 54-066966 further in combination Ameen et al. (5,681,443).

JP 62-60640, Chen et al. (5,156,710), Shiotani et al. (5,741,598) or JP 11-240,106 in combination with JP 54-066966 fail to teach wet coating a metal atop the dry coated metal.

Ameen et al. (5,681,443) teaches forming printed circuits whereby a metal flash layer is applied to a polymer substrate by vapor deposition or sputtering and subsequently a metal layer is applied to the flash metal by electrodeposition.

Therefore it would have been within the skill of one practicing in the art to have modified JP 62-60640, Chen et al. (5,156,710), Shiotani et al. (5,741,598) or JP 11-240,106 in combination with JP 54-066966 by forming a second metal coating by wet plating as evidenced by Ameen et al. (5,681,443) with the expectation of achieving success, i.e. a thicker coating.

Response to Arguments

5. Applicant's arguments filed 6/12/06 have been fully considered but they are not persuasive.

Applicant argued that the prior art teaches applying heat to form a laminate comprising the conductor layer and a polyimide and not forming the laminate and subsequently performing a heating step, i.e. a post heat treating step on a laminate.

JP 54-066966 teaches post-treating by aging (heating) of a laminate comprising metal/polyimide.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B Talbot 8/14/06

Brian K Talbot
Primary Examiner
Art Unit 1762

BKT